

# Wheel Balance Vs. Wheel Alignment



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Vehicle owners commonly confuse wheel balance and wheel alignment. As a result, the owner can sometimes chase the wrong concern with good money. Let's see if I can explain the difference between wheel balance and wheel alignment, how to detect which is which, and the effect either or both can have on your vehicle's tires.

Let's start with balance. Two slightly imperfectly balanced components, a tire and a wheel, are combined into a single forty pound (average) component which, for simplicity's sake, we'll just call a "wheel." There is virtually no chance that the final tire/wheel unit would be perfectly balanced when put together. A heavy or light spot as small as a half of an ounce on either the radial (circular) or lateral (side-to-side) axis can cause you to feel a vibration as you drive down the road. The more out-of-balance, the heavier the vibration you will feel. To balance a wheel, the technician will normally mount the assembly on a sophisticated machine that spins the wheel and

then indicates where small weights should be installed to make sure it is perfectly balanced. If you suddenly feel a new vibration when driving down the highway, one of the weights may have fallen off the wheel and a quick check can confirm the concern.

An out-of-balance tire will actually bounce on the roadway and can cause wear commonly called "cupping" or larger bald spots to appear on the tread. These wear points increase the out-of-balance problem. Getting an out-of-balance tire corrected will help prolong tire wear and make driving much more comfortable.

Let's move to alignment. Basically, alignment is how a vehicle's tires are aligned with each other and their angle in relation to the vehicle and the pavement. The vehicle's manufacturer has specified three important measurements for each vehicle it produces. They are: "toe" which is how the tires toe in or out from the perfect angle; "camber" which is the centerline slant of the wheel in relation to the pavement; and "caster" which is the centerline slant of the axle to wheel mounting points in relation to the pavement.

When its wheels are not properly aligned, a vehicle will pull to one side or the other when driving a straight line or wander when driving down a straight and

level road. You can also detect alignment concerns by looking at the tires. If the tread is more worn on one side of the tire than the other or if you notice that individual treads are higher on one side than the other, your vehicle most probably needs a wheel alignment. Treads that are deeper in the middle or on the outside of the tire are generally an inflation concern rather than an alignment problem. Tires that are worn should be replaced before aligning wheels. In some cases, worn tires can be transferred to the rear wheels. Your tire professional can help you make that decision.

Your technician should always check for worn or damaged parts before performing an alignment and should advise you of any problems found. At your request, as in our QuickLane Tire and Auto Center, all four wheels can be checked for proper alignment and adjusted to the exact factory specification before returning your vehicle to you. Using the latest in laser/computer technology makes it quick and easy to find and correct any abnormalities.

*Ralph Seekins has more than 41 years' experience in the automotive industry. He started as a mechanic, worked in sales, and for the past 34 years, has been the owner of Seekins Ford Lincoln.*